Vertical Transmission of HIV—Rapid Assessment Guide

UNICEF/UNAIDS

Why is there mounting concern regarding the issue of vertical transmission of HIV?

Of the 1600 new infections in children under the age of 15 per day, vertical transmission of HIV accounts for the vast majority and is virtually the only source of infection in young children. In 1997, an estimated 590 000 children world-wide were infected with the virus, bringing the total number of children living with HIV to 1.1 million at the end of 1997. Of the nearly 4 million children infected with HIV since the beginning of the pandemic, about 90% have been born in Africa, owing to a combination of high HIV prevalence in pregnant women and high fertility rates. By the year 2010, AIDS may increase mortality of children under the age of 5 by more than 100% in regions most affected by the virus.

Most studies suggest that the probability that an HIV-positive woman's baby will have the virus range from 15 to 25% in industrialized countries (if there is no AZT treatment) and 25 to 45% in developing countries. These differences can be explained by the frequency of breastfeeding, maternal characteristics such as poor nutritional status and exposure to infectious diseases, or factors surrounding the delivery.

Until recently there was no means of preventing vertical transmission for HIV-positive women who wished to give birth. This situation is now changing as the benefits of various interventions are being studied and some have already been proven effective. The recent findings of CDC-supported clinical trails in Thailand proved a short-course regimen of AZT to be effective. However, in many countries women can not benefit from these drugs as the prerequisites for administering drugs—testing and counselling services—are not available. The overwhelming majority of HIV-infected people living in the developing world do not know that they are infected with HIV.

What findings of recent clinical trials are important for programmes?

In 1994, a clinical trial demonstrated that a regimen of AZT known as the ACTG 076 regimen, administered to non-breastfeeding HIV-positive pregnant women, reduced the risk of perinatal transmission of HIV by almost 70% (from 25% without AZT to 8% with AZT). During this trial, AZT was administered orally to women five times a day starting at about 26 weeks gestation and continuing throughout pregnancy. It was then given intravenously during labour, and orally four times a day to infants for six weeks after they were born. In industrialized countries, such as France and the United States, where this regimen is the routine standard of care significant declines in perinatal HIV infection have been observed.

In February 1998, preliminary findings from a study by the Centers for Disease Control and Prevention showed that a short course of AZT given late in pregnancy and during delivery reduced the rate of HIV transmission to infants of infected mothers by half and was safe and well tolerated for use in developing countries. In this trial in Thailand, this shortened regimen of AZT lowered the risk of perinatal transmission by 51% (from 18.6% without AZT to 9.2% with AZT). Although this reduction is not equivalent to that observed in the ACTG 076 trial, this short-course regimen is more applicable and feasible for many countries in the developing world and can have a significant impact on perinatal transmission there.

What are some possible interventions to reduce the risk of mother-to-child transmission?

Voluntary and Confidential Counselling and Testing (VCCT)—is a key component of a comprehensive ranges of measures for HIV/AIDS prevention and care. The potential benefits of testing and counselling of the individual included improved health status through good nutritional advice and earlier access to care and treatment for HIV-related illness; awareness of safer options for reproduction and infant feeding; and information on how to maintain safer sexual practices. Good quality, voluntary and confidential HIV testing and counseling should be available and accessible.

Two interventions associated with demonstrable reduction of vertical transmission of HIV are antiretroviral treatments and finding alternatives to breastfeeding. These two interventions will require a wide access to and uptake of voluntary counselling and testing, which should be accompanied by the development of support services for women who are HIV positive (medical, psychological, social, community based support).

Alternatives to breastfeeding: Of the approximately 1000 cases per day of vertical transmission, about 500 are estimated to be associated with breastfeeding. Most of these occur in sub-Saharan Africa. In most developing countries, feeding young children with infant formula or other breastmilk substitutes is associated with high risk of morbidity and mortality from infectious diseases other than HIV, especially diarrhoea, compared to that associated with breastfeeding. HIV-positive women who choose not to breastfeed their infants need the information and means to carry out artificial feeding as safely as possible, in keeping with UNAIDS policy on HIV and infant feeding. In many countries, special measures will be needed to ensure access to a high-quality breastmilk substitute (or the capacity to manufacture one at home) as well as clean water, fuel and other support to minimise risks of artificial feeding. It is not yet known whether AZT or other drugs reduce the risk of vertical transmission through breastfeeding, but research is being conducted on this question.

Antiretroviral drugs: To date, drug regimens tested in two studies have proven to reduce the risk of HIV transmission from mother to child, as noted above. It should be noted that the Thailand study was conducted in a population of HIV-infected women who did not breastfeed. Further evaluation of the shortened regimen in countries where breastfeeding is the norm is therefore essential, as well as further investigation of the timing of transmission through breastfeeding and thus the potential benefit of reducing the duration of breastfeeding.

A number of other interventions, listed below, are likely to contribute to the reduction of vertical transmission even if, in some cases, that contribution has not been definitively established or quantified. The listing of these interventions highlights the important principle that activities to reduce vertical transmission should be an integral part of health and nutritional care for women.

Vitamin A supplements: Vitamin A deficiency in HIV-infected mothers has been shown in cross-sectional studies to be associated with a higher risk of HIV transmission from mother to child. Experimental trials in Malawi, South Africa, Tanzania and Zimbabwe are currently studying whether administering vitamin A supplements to HIV-positive women lowers the risk of vertical transmission. Vitamin A supplementation is low-cost, does not require prior HIV testing and can have other health benefits.

Other nutrition interventions: Anemia in HIV-infected women may be associated with lower tolerance of antiretroviral drugs and should therefore be corrected. Iron/folate supplements may be useful for this purpose, though some of the anemia of HIV is not iron-deficiency anemia. Severe anemia, which is relatively widespread in late pregnancy and lactation in some countries, is likely to be treated (sometimes over-treated) by transfusion, which is in turn may cause HIV infection if blood supplies are not well controlled.

STI diagnosis and treatments: Genital infections have been found to be associated with an increased risk of vertical transmission. Furthermore, early diagnosis and treatment of STIs have numerous advantages for both the mother and the child as they help reduce the risk of sexual transmission of HIV and prevent child malformations, still-births, serious occular infections and sterility. Indeed, syphilis screening is already included in standard prenatal care in most countries worldwide.

Cleansing the birth canal during labour and delivery: There is a relatively high risk of transmission during delivery due to presence of the virus in blood and mucus in the birth canal. Therefore, various methods of vaginal washing before and during delivery are being investigated in several developing countries. In a trial performed in Malawi, lavage using chlorhexidine showed no overall difference in rates of transmission, but did show a significant reduction in transmission where membranes were ruptured for more than 4 hours; it also resulted in a significant reduction of infant mortality and morbidity. Further studies using different concentrations of chlorhexidine and other microbial agents are under way. Cleansing of the neonate may also prove to reduce the risk of infant HIV infection.

Modifications of obstetrical care: Since some invasive obstetrical procedures such as amniocentesis, use of scalp electrodes, and episiotomy are thought to increase the risk of transmission by increasing the level of infant exposure to blood and genital secretions of the infected mother, reducing the frequency of these procedures may reduce the risk of HIV transmission to infants.

Family planning services: All women and men, irrespective of their HIV status, have the right to determine the course of their reproductive life and health. Links between HIV testing programmes and family planning services must be strengthened in order for HIV-infected women and their

partners to make informed choices regarding their future reproductive life. Moreover, the contraceptive effect of lactational amenorrhea associated with breastfeeding will obviously not be enjoyed by women who choose alternatives to breastfeeding because of their HIV status.

Other elements of basic services for all pregnant women: Tetanus toxoid immunization; detection and management of complications (eclampsia, bleeding, abortion, anemia...), clean and safe delivery, prevention and management of infections after delivery (mother and newborn).

Priority areas for changing the existing situation

Each of the factors related to vertical transmission noted above is associated with a set of potential programme actions. As already noted in the Programme Instruction, CF/PD/PFO/97-009,), there are a number of areas where UNICEF with its partners may be well placed to contribute to programmes to reduce vertical transmission. The purpose of the rapid assessment tool proposed by the Health and Nutrition Sections is to gather basic information in these programme-relevant areas to enable the most necessary, feasible and effective programme actions to be identified.

The assessment tool thus covers the following areas, corresponding to the nature of the vertical transmission problem as described above.

- **Relevant background information** that should be easy to collect in UNICEF offices, such as overall mortality rates, HIV prevalence, fertility rates, prenatal care practices and coverage, infant feeding practices, etc.
- Health facilities and services, with a special focus on prenatal and peri-natal services and services related to VCCT and infant feeding.
- VCCT, including barriers to access to VCCT (social stigma as well as logistical and economic barriers).
- Training of health workers, especially in VCCT, prenatal services related to vertical transmission and infant feeding counselling.
- Family planning services, including the nature and availability of services, their links to HIV-related services, barriers to access to these services and so on.
- **Infant feeding,** including potential availability of counselling and resources to minimise the risks of artificial feeding.
- **Community mobilisation and partnerships**, including the range and reach of potential community-based institutional partners, the likelihood that HIV-positive women could enjoy some level of participation in decision-making related to service delivery, and so on.

Information Sought	Key Questions/Issues	Sources of Information	Comments/ Explanations			
I. Background Inf	. Background Information: This information should already exist or be readily available in the UNICEF office.					
1. Epidemiology of HIV/AIDs	What is the HIV prevalence; HIV prevalence among women of childbearing age Mapping of HIV infection	Existing surveys Health information system				
2. Morbidity, mortality and related data	 IMR and U5MR Rates of diarrhea among children Maternal mortality rate Fertility rate Rates of exclusive, continued breastfeeding Qualitative assessment of risks of artificial feeding 	Health information system Central MOH information				
3. Existing policies and structures	 Protection of and services for HIV-positive people Contraception Abortion Infant feeding Counselling and testing Is there a national coordinating committee or other structure for AIDS? For women's health? 	• MOH				
4. Nature and coverage of relevant services	 Mapping of existing services, blood bank, individual testing and counselling centers Est. % of women using prenatal services Timing of visits % of assisted births Amount of essential obstetric care (EOC), basic EOC facilities and comprehensive EOC facilities Geographical distribution of EOC Proportion of births in all basic and comprehensive EOC facilities 	• MOH				
	facilities Cesarean section as a percentage of all birth CFR case fatality rate					

5. Awareness of vertical transmission problem among key partners	Do key persons in these institutions/populations have basic knowledge of vertical transmission? Medical association/nurses MOH UN partners, including UNICEF NGOs General population	Interviews Impressions of UNICEF staff	This should be the general impressions of the UNICEF staff; should not take time with interviews unless interviews are being done with these people anyway
6. Awareness of vertical transmission in the population	Is this issue in the media	• Media	This should be the general impressions of the UNICEF staff; should not take time with interviews unless interviews are being done with these people anyway
7. Access to information concerning HIV and VT (decision makers)	Medical/guidelines Clinical trials Other research	Is information easily accessible and where do most decision makers get this info? Media, MOH?, etc.	
8. Summary of existing activities related to vertical transmission including, who and where?	UN NGOs Local/International research institutions Women=s organizations/networks	Interviews Knowledge of UNICEF staff	
9. Infant food industry activity and related legislation	 Is there active marketing of infant formula throughout the country, just in some parts? Is there Code-related legislation or other attempts to regulate marketing of infant formula? 	Knowledge of UNICEF staff	

Nature of available services	 And Services: To be assessed in a few (1-5) facilities Existence of baby-friendly hospitals and capacity to build on BFHI training centers Fees for service (ANC) Linkage between ANC/maternity/PNC - with VCCT, Family Planning and social services Standard ANC check-up: TT, malaria prophylaxis, iron/folate and other supplements, STI, HIV detection Lab: Hb, Syphilis, HIV, blood transfusion Hospitals able to offer diagnosis and treatment of syphilis, gonorrhea, clamidiyia Hospitals provide C-sections and blood transfusions on 24hr basis 	Selected health facilities Interviews with DMO and/or with the staff in charge of the facility.	
2. Use of services	 % population with access to ANC services # of pregnant women attended at least once by trained health professional/births ANC per pregnant women Timing of ANC visits. % of hospital deliveries in that community and among women receiving ANC % of PNC visits 	Registers Best estimation of experienced workers	If these proportions or incidences can not be estimated with respect to the catchment area of the facility based on hard data in the register, staff should be asked for their best estimation.
3. Nature and quality of services	 % of delivering women who developed obstetric complications and received emergency obstetric care. % of pregnant women attending ANC screened for syphilis % of deliveries that are C-Section (WHO standard of 5% minimum and 15% maximum) Existence of material for the protection of health workers % of women giving birth at the facility who have episiotomies are there any measure to reduces transmission (cleansing birth canal) taking place today? 	Registers Interviews	
4. Nature and extent of non-facility-based services	 Approximate % of pregnant women in catchment area who seek services of TBAs Nature of services provided by TBAs (family planning, obstetric services, counselling, etc.) Through churches or other institutions, are there pre-marriage counselling services or other regular contacts with pre-pregnant women? 	MOH Spot checks	

Availability and nature of testing and counselling services	 General information on functioning (time, fee) Are trained counselors available at all test sites? Subject areas in which counsellors have received training Level of educatin of counsellors Are referrals made from ANC, health, FP and other services? Are VCCT staff also providing other services? Description of the processes (pre and post test counselling) Content of messages for HIV+/HIV- patients, mothers Is testing provided on a voluntary and confidential basis? 	MOH and NGO data Selected testing facilities Interviews Best judgements and descriptions of experienced health workers	UNAIDS policy on HIV Counselling and Testing available from web site: www.unaids.org
2. Accessibility of testing and counselling services	 % of pregnant women tested number of tests done in 1997 among adults, infants Of adults tested, what % are tested with a partner? What is the proportion of those tested who return for test results? 	Registers Best estimations of health workers	Here we are looking at the availability and use of testing services and trying to obtain the % of pregnant women testing in the catchment area.
3. Quality of testing and counselling services	 Precautions taken to ensure confidentiality Types of tests used/specificity - sensitivity/reference laboratory/management of stock (test kits)/coefficient of variation Support/referral for counselors Support/referral for those counseled 	Interviews Direct observation	
4. Counselling for those who decide not to be tested	 For those who do not get tested, is info given on prevention of transmission? Is info given on infant feeding? What is the content? 	Key informants Site visits/observations	Note any tendancy to discourage breastfeeding amoung untested mothers

IV. Training of Health Care Wor 1. Nature/extent of training of health care workers including family planning services (medical doctor, nurses, midwife)	 kers: To be assessed with respect to workers in a few (1-5) Have health workers been trained on HIV, vertical transmission, infant feeding options, antiretroviral therapy, STI/HIV Have they been trained on modification of clinical practices including ANC, delivery, infant feeding 	facilities. • Interviews • Training material	For all these items, assess rapidly the topic areas in which training occurred, and separately obtain, if possible, a copy of the curricula used in this
2. Nature/extent of training of those conducting Voluntary and Confidential Counselling and Testing (VCCT)	Training of laboratory workers - knowledge of techniques Counselors - training on HIV/VT	Interviews Training materials	training.
3. Nature/extent of training of workers providing social support services to assist HIV+ people/families	 Training/experience on establishing mother-to-mother support networks? Training on work with other community groups, traditional healers? 	Interviews Training material	

Availability of family planning services	 Are referrals made from family planning services to testing, maternities and social services Management of contraceptive stock in the past 6 months (type maintained, how many days without stock) STI detection and treatment included Lab - syphilis, HIV Protocol for HIV+ women and men 	Interviews Registers	
2. Accessibility of family planning services	% of population in that community using the service compared to the adult population Prevalence of urethra discharge among men aged 15-49 Prevalence of STDs among women attending services Fees for service	Registers	
3. Quality of family planning services	 % of women screened for syphilis, clamyidia or gonorrhea % of women receiving treatment % of post-partum women (6 weeks, after delivery) offered family planning Is any counselling included in services? 	Registers	

VI. Infant Feeding Options: To	VI. Infant Feeding Options: To be assessed at a few (1-5) sites where services are delivered				
1. Rates and trends	 Rate of exclusive breastfeeding in catchment area (estimate) Approx. % of women who introduce complementary foods at about 6 mo.; general comp. feeding practices Community attitude towards non-breastfeeding women Is wetnursing practiced/acceptable? Has HIV already changed infant feeding beliefs and behaviors? How? Who generally makes decisions about infant feeding? 	Key informants Survey data if decentralized	Helps to assess whether artificial feeding influences are spilling over the non-HIV affected families.		
2. Distribution/commercial- ization of infant foods	 Do social or health services or NGOs distribute infant foods of any kind? How targeted? If so, about what quantity is distributed per child? Aside from distribution programmes, what is the general availability of commercial infant formula? 	MOH Min Social Services Key informants	Supplies should be continued for as long as the need exists, according to the international code.		
3. General breastfeeding counselling and related services	 What % of women give birth at baby-friendly hospitals? Number of health workers at the site trained in BF counselling Is there use of expressed breastmilk or heat-treated breastmilk in the hospital/maternity? Are newborns kept in close contact with HIV+ mothers (even if there is no breastfeeding)? 	Site visits Key informants			
4. Post-test counselling on infant feeding	 Nature of info given to HIV+ women for their infant feeding decisions What is said about the cost of artificial feeding? Do workers tell women what to do or let them decide? Questions raised by women during counselling What steps are taken to encourage BF among HIV-negative mothers? What support and referral services are recommended to HIV+ women? Are they given commercial information about infant formula? 	Site visits/observations Key informants Focus groups	Assessor should try to get a sense of the attitude of staff toward HIV+ mothers who choose to breastfeed and of the attitude of staff and the public toward women seen to be feeding artificially.		

5. Artificial feeding counselling and follow-up	 Existence of alternatives: what is available and at what cost? Are women shown how to feed artificially (preparation of formula, use of cup, etc.) by a health worker? What difficulties do women have obtaining breastmilk substitutes and other animal foods? Is there special follow-up for artificially fed infants? How do health workers judge the availability locally of clean water, fuel, etc. for women using artificial feeding? 	Site visits/observations Key informants	If nearby household visits are possible to families where infants are being artificially fed, this might be useful.
6. Cost of artificial feeding	Approx. cost of artificial feeding (e.g. 20 kg formula, 20 kg milk or equivalent for one year, as a % of minimum wage or other approximation)	Observation in typical shop, if possibleKey informants	

VII. Community Mobilization/Partnerships				
Involvement of key partners including, government, NGOs, UN organizations and local groups	What are they doing in the field of HIV/VT and how can we collaborate with them?	Interviews Visits		
2. Availability of support groups/services for HIV-positive people	 Opinion of leaders/religious groups/NGOs (HIV+, HIV-negative mothers, orphans) Sources of information for community groups How social system copes with HIV/VT Existence of CBO, NGOs, supporting HIV+ persons and linkages with medical service 	Interviews		
3. Access to and use of community support systems	 # of families supported by the CBO Type of support Duration of support, when/why does it stop 	Registers		